

Abstract

Disclosed is an antenna system including a Luneberg Lens having a spherically shaped outer surface and a spherically shaped focal surface spaced from its outer surface with a plurality of patch antenna elements disposed along the focal surface of the Lungberg Lens; and a power 5 combiner for combining signals received by said plurality of patch antenna elements. The disclosed antenna system may be used a part of a robust GPS system having a plurality of GPS satellites each transmitting a GPS signal; a plurality of airborne GPS platforms, each GPS platform including a GPS transmitter for transmitting its own GPS signal, the GPS signals being transmitted from the plurality of airborne GPS platforms being differentiated from the GPS 10 signals transmitted by visible GPS satellites; and at least one terrestrially located GPS receiver for receiving the GPS signals transmitted by visible ones of the GPS satellites and by visible ones of said airborne GPS platforms.